



This diagram shows a cross-sectional view of a semiconductor device. A central stack of layers is covered by a dome-shaped protective layer 35. The stack consists of a top layer 34a, a middle layer 34b, and a bottom layer 34c. The middle layer 34b is further divided into sub-layers 34b1 and 34b2. The bottom layer 34c is a patterned layer. The entire stack is supported by a substrate 31, which has a central region 32 and side regions 33. The side regions 33 are separated by a trench 37. The substrate 31 is connected to a power supply 36.

Atomic Concentration (%)

Boron Ion Implantation  
Reoxidation and RTP Anneal

Si

Ge

O

Sputter time (min)

Detailed description: This graph shows the atomic concentration of Si, Ge, and O as a function of sputter time. The y-axis ranges from 0 to 100% in increments of 20. The x-axis ranges from 0 to 15 minutes in increments of 5. The Si curve (open circles) starts at ~75%, drops to ~40% at 0.5 min, then rises to ~100% by 1 min, remaining high until 10 min, then drops to ~85% at 15 min and rises back to ~100% at 16 min. The Ge curve (filled circles) starts at ~5%, drops to ~2% at 0.5 min, remains low until 10 min, then rises to ~20% at 15 min and drops to ~5% at 16 min. The O curve (open circles) starts at ~100%, drops to ~10% at 0.5 min, remains low until 15 min, then rises to ~100% at 16 min.

Sputter time (min)	Si (%)	Ge (%)	O (%)
0	75	5	100
0.5	40	2	10
1	100	2	10
5	100	2	10
10	95	5	10
15	85	20	10
16	100	5	100